CLAIMS

1. A worm support device for supporting shaft sections on both end sides of a worm connected to a drive source on a housing via bearings, wherein

a deep-groove ball bearing satisfying at least either a first condition where the curvature radius of a racetrack groove of an inner ring is between 52.5% or more and 75% or less of the diameter of a ball or a second condition where the curvature radius of a racetrack groove of an outer ring is between 53.5% or more and 85% or less of the diameter of a ball is used for the bearing on the drive source side.

2. The worm support device described in claim 1, wherein

the joint of the inner ring of the bearing on said drive source side and the shaft portion of the worm is of a tight fit type, and a bearing on the side opposite that of said drive source side is joined so that it can move relative to the outer peripheral surface of the shaft portion of said worm or the inner peripheral surface of said housing.

3. The worm support device described in claim 2, wherein

the bearing on said drive source side is set to a negative gap.

4. A power assist unit for providing a steering assist power to a wheel steering mechanism, comprising

a motor; and

a worm gear mechanism for reducing the rotation power generated by the motor and outputting it as said steering assist power; wherein

said worm gear mechanism comprises a worm coupled to the output shaft of said motor and a worm wheel engaged with the gear section of the worm and externally fixed to the rotary shaft;

a first bearing on the motor side and a second bearing on the side opposite the motor side for supporting the respective shaft sections on both end sides of said worm on the housing; and

said housing for accommodating at least said worm and said both bearings in a supported state thereof; and

a deep-groove ball bearing satisfying at least either a first condition where the curvature radius of a racetrack groove of an inner ring is between 52.5% or more and 75% or less of the diameter of a ball or a second condition where the curvature radius of a racetrack groove of an outer ring is between 53.5% or more and 85% or less of the diameter of a ball is used for said first bearing.

5. The power assist unit described in claim 4, wherein

the joint of the inner ring of said first bearing on and the shaft portion of said worm is of a tight fit type;

said second bearing is joined so that it can move relative to the outer peripheral surface of the shaft portion of said worm or the inner peripheral surface of said housing.

6. The power assist unit described in claim 5, wherein

the inner peripheral surface of said housing is a large-diameter peripheral surface on the motor side and a small-diameter inner peripheral surface on the side opposite the motor side; and

the joint of the outer ring of said first bearing and said large-diameter inner peripheral surface of said housing is of a loose fit type and said outer ring is positioned in the axial direction by sandwiching between a step wall surface formed by a step between the small-diameter inner peripheral surface and large-diameter inner peripheral surface of said housing and a threaded lid which is mounted by threading on the large-diameter inner peripheral surface of said housing.

7. The power assist unit of claim 4, wherein

the outer ring of said second bearing is joined by press fitting into the small-diameter inner peripheral surface of said housing and positioned in the axial direction.

8. The power assist unit of claim 4, wherein

the raceway groove of the inner ring of said first bearing is a composite curve surface; and

the curvature radius of said raceway groove on the side of both shoulder regions is smaller than the curvature radius on the side of the groove bottom region.